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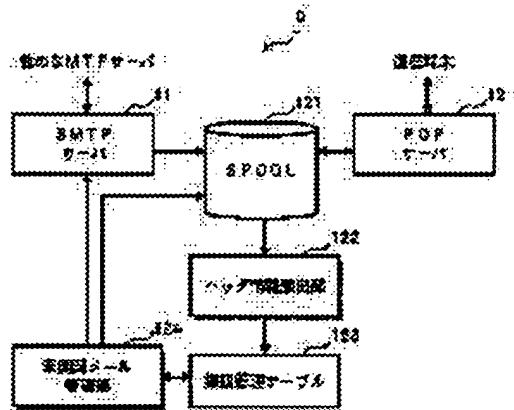
(54) DEVICE AND SYSTEM FOR REPEATING MAIL AND STORAGE MEDIUM

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a mail repeating system which makes it possible to confirm that electronic mail is not opened.

SOLUTION: A mail server when receiving electronic mail having the term of validity set on the sender's side transfers it to the mail server which control the receiver.

The mail server holds the received electronic mail in SPOOL 121b, extracts the sender and the term of validity from the electronic mail, and stores them in a term management table 123b in the order of the end of the term. When there is an unopened mail even at the end of the term of validity, an unopened mail management part 124b adds notice information indicating that the electronic mail is unopened and the term of validity as an indefinite period to the electronic mail and sends them together to the sender.



LEGAL STATUS

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the e-mail junction technique for checking certainly whether the electronic mail distributed through the Internet has been opened within an expiration date by the sender side.

[0002]

[Background of the Invention] An electronic mail is a communication tool performed through networks, such as the Internet and LAN (Local Area Network), using communication terminals, such as a personal computer. It becomes possible by using the electronic mail ("e-mail" only being called hereafter) using the Internet especially to exchange information among people in the world more quickly than FAX, a letter, etc.

[0003] When delivering e-mail through the Internet, the computer system (the following, "mail server") which an Internet Service Provider (a "provider" is only called hereafter) holds usually intervenes as e-mail repeating installation or an e-mail relay system. A mail server is recognized as a user to whom he should manage only the user who belongs to the provider concerned. That is, in the case of a network like the Internet, it comes to exchange e-mail through two or more providers' mail server. This is explained with reference to drawing 8.

[0004] In drawing 8, mail server 30a of Sender's S communication terminal, Recipient's R communication terminal, and Provider A and Provider's B mail server 30b are connected to Network N. The mail M sent towards Network N from Sender S is transmitted to mail server 30b from mail server 30a. Since Recipient R is not necessarily always connected to Network N, it is kept by Provider's B mail server 30b until Recipient R accesses Mail M. And when Recipient R accesses and Mail M is usually opened, it will be deleted from mail server 30b. When answering Sender S side in e-mail from Recipient R, reply mail will be conversely kept by Provider's A mail server 30a. With such an e-mail distribution gestalt, when a recipient becomes unable to see prolonged mail, a lot of mail is accumulated in each provider's mail server, and the load on management becomes huge.

[0005] On the other hand, in Sender S side, as long as there is no reply of a purport which checked the contents from Recipient R, it cannot check whether the recipient has opened e-mail. Therefore, when the corroboration that the recipient read the mail which requires emergency was not able to be taken, Sender S needed to contact anew to Recipient R with means, such as a telephone and FAX, and had the problem which cannot harness the advantage of e-mail. Similarly, business [a recipient] to surely read had the case where the postal means other than e-mail was used. Moreover, when e-mail made the contents information, its application, etc. of seminar holding of for example, a specific day and Recipient R was not able to see prolonged mail by a certain reason, after passing over a date, e-mail will be seen, and there was a problem that the semantics of e-mail was lost, in practice.

[0006] As a means to solve such a problem, the electronic mail communication device (following the "conventional example 1") indicated by JP,10-1226010,A, the electronic mail receiving set (following the "conventional example 2") indicated by JP,10-173701,A are known conventionally. The equipment

of the conventional example 1 is the mail which passed over the opening term from the recipient side, and when the thing within an automatic reply term is answered with the information on an unopened purport, it is equipment which reports this to the sender, while adding an opening term to the header unit of e-mail and transmitting to it. Since according to this equipment the purport which was not opened within the opening term is notified to a sender side from a recipient side and the original mail is answered as it is, there is an advantage which can take a second best policy by the sender side, feels easy, and can send e-mail even if it is moreover critical information. Moreover, the equipment of the conventional example 2 is equipment which has the function distributed to the folder which corresponds the mail according to the extracted reply term while extracting a reply term from the mail, when two or more folders are created according to the reply term and e-mail is received. According to this equipment, even if it is the case where a lot of mail is transmitted, there is an advantage that the leakage in a reply can be prevented by referring to the folder according to reply term.

[0007] However, with the equipment of the conventional example 1, unless a term function manager, an automatic reply function, etc. are prepared in the communication terminal by the side of a recipient, the above advantages are not acquired by the sender side. On the contrary, when the terminal by the side of a recipient and the sender has the above-mentioned term function manager, an automatic reply function, etc., in case a letter is answered in e-mail by the recipient side, when a sender side cannot open reply mail, e-mail will be again answered by the recipient. The same is said of the case of the equipment of the conventional example 2, and effectiveness is missing on the network which many and unspecified persons access like the Internet.

[0008] The basis of the above background and this invention make it a technical problem to offer the e-mail repeating installation and the e-mail relay system which cannot be concerned with the function of the communication terminal by the side of a recipient, but can tell a sender side certainly about whether the mail with an expiration date was opened within the term, and the e-mail distribution approach. Other technical problems of this invention are to offer the record medium for realizing the above-mentioned e-mail repeating installation on a general-purpose computer apparatus.

[0009]

[Means for Solving the Problem] The e-mail repeating installation of this invention which solves the above-mentioned technical problem The e-mail maintenance means which receives the mail with which arbitrary expiration dates were set up by the sender side, and a recipient holds with the gestalt which can be opened at any time, An information extract means to extract the sender and said set-up expiration date from said received mail, The extracted expiration date and the opening situation of the mail concerned are supervised, and even if it reaches at the telophase of said expiration date, when there is unopened mail, it has an unopened mail administration means for it to give the notice information on an unopened purport, and a new expiration date to the mail concerned, and to answer said sender side, and changes.

[0010] Said information extract means has the term managed table which arranges said extracted expiration date in order of the telophase of a term, for example, and said unopened mail administration means deletes the information on the sender about the eliminated mail concerned, and an expiration date from said term managed table while deleting the mail which answered a letter from said e-mail maintenance means. This unopened mail administration means sets up substantially the new expiration date in the case of a reply indefinitely preferably.

[0011] Moreover, the e-mail relay system of this invention has the 1st e-mail repeating installation which receives the mail with which arbitrary expiration dates were set up by the sender side, and the 2nd e-mail repeating installation which intervenes between this 1st e-mail repeating installation and the recipient of said mail. Said 1st e-mail repeating installation and the 2nd e-mail repeating installation are the e-mail repeating installation of above-mentioned this invention, respectively, and at least, said 2nd e-mail repeating installation is constituted so that said notice information and new expiration date may be given to said unopened mail and said sender may be answered, and said 1st e-mail repeating installation is constituted so that the mail answered from said 2nd e-mail repeating installation may be held until there is a transfer request from said presenting terminal. The 1st e-mail repeating installation sets up said

new expiration date indefinitely substantially preferably.

[0012] The process which the e-mail distribution approach of this invention is the approach of performing through the e-mail repeating installation connected to the network, and sets arbitrary expiration dates as e-mail, and is transmitted to it by the sender side, While extracting the information as which e-mail repeating installation receives and holds the mail with which said expiration date was set up, and expresses the sender and said expiration date from this mail Even if it supervises the extracted expiration date and the opening situation of the mail concerned and reaches at the telophase of said expiration date, when there is unopened mail It is characterized by including the process in which it gives the notice information on an unopened purport, and a new expiration date to the mail concerned, and said sender is answered, and the process in which a sender side acquires said answered mail at the time of arbitration.

[0013] The record medium of this invention which solves a technical problem besides the above The processing which receives the electronic mail with which arbitrary expiration dates were set up by the sender side, and a recipient side holds with the gestalt which can be opened at any time, The processing which extracts the information showing the sender and an expiration date from said electronic mail currently held, The processing which supervises the extracted expiration date and the opening situation of the electronic mail concerned, The digital information for making a computer apparatus perform processing as which it attaches the notice information on an unopened purport and a new expiration date, and answers the electronic mail concerned to a sender side when there is an unopened electronic mail, even if it reaches at the telophase of said expiration date was recorded. It is the record medium in which computer reading is possible.

[0014]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail with reference to a drawing. Drawing 1 is the schematic diagram of the e-mail relay system which applied this invention. in this e-mail relay system 1, many and unspecified persons relay mail delivered and carried out through the accessible network N, for example, the Internet. For convenience, two mail servers 10a and 10b of the same configuration are connected to Network N, and it considers as the thing of explanation to which communication terminals 20a and 20b are connected in it at each mail servers 10a and 10b. Mail server 10a shall be managed by Provider A, and mail server 10b shall be managed by Provider B. Provider's A user (it considers as the sender for convenience) operates communication terminal 20a, and Provider's B user (it considers as a recipient for convenience) operates communication terminal 20b. in addition -- mail servers 10a and 10b, communication terminals 20a and 20b, and those components -- respectively -- except for the case where another side needs to be distinguished, it is explained while using the sign except a suffix.

[0015] In view of the property (Internet) of Network N, the mail server 10 has the function of the SMTP (Simple Mail Transfer Protocol) server 11 and the POP (Post Office Protocol) server 12, as shown in drawing 2 . The POP server 12 is equipped with the function of SPOOL121, the header information extract section 122, the term managed table 123, and the unopened mail administration section 124, and is constituted. On the other hand, a communication terminal 20 is a personal computer, and as shown in drawing 5 , it has the function of the POP client 21. This POP client 21 is constituted including the function of the e-mail Circulation Division 211, the e-mail editorial department 212, and the term Management Department 213.

[0016] In addition, SMTP server 11 and the POP server 12 (SPOOL [121], the header information extract section 122, the term managed table 123, and the unopened mail administration section 124 are included) in a mail server 10 are formed, when the mail server 10 which is the computer apparatus which has a transmitter style reads a predetermined program code and performs this. Although this program code is installed in the store which has the storage region which CPU of a mail server 10 can usually read, it may be recorded on portability record media, such as CD-ROM with the disengageable mail server 10 concerned, and FD, or the program server connected to Network N, may be read at the time of use, may be installed in the storage region of the above-mentioned store, and activation may be presented with it at any time. Moreover, SMTP server 11 grade may be realized by making the operating

system (OS) which the mail server 10 carries execute the part by proxy, or using a part of function of OS for it.

[0017] Although formed by the communication terminal 20 which is the computer apparatus which has a transmitter style similarly reading a predetermined program code from self storage also about the POP client 12, and performing this, this program code may be recorded on a portability record medium with a disengageable communication terminal 20, a program server, etc., may be read at the time of use, may be installed in the above-mentioned storage, and activation may be presented with it at any time.

[0018] First, the POP client 21 which are SMTP server 11 and the POP server 12 which are the basic function of a mail server 10, and the basic function of a communication terminal 20 is explained.

[0019] It will be the requisite for employment to perform a mail transfer between SMTP servers besides a <SMTP server>, and to work on the both sides of a transmitting side and a receiving side. A mail transfer (junction) will be performed holding "conversation" as shown in drawing 3 R> 3 in fact. That is, a session is established towards the SMTP server (the following, "receiving server") of a receiving side from the SMTP server (the following, "transmitting server") of a transmitting side "HELO." If a transmitting server checks e-mail transmitting initiation "MAIL" and delivery and a receiving server check it ignited by the check by the receiving server, a transmitting server will transmit the contents of e-mail "DATA." "Conversation" is completed when a receiving server checks that termination "QUIT" of a session has been told from the transmitting server. By holding such a "conversation", it enables many and unspecified persons to transmit e-mail on the accessible network N.

[0020] Many of <POP server> users are users of a dialup connection who have not always connected with Network N. Then, SPOOL(spool file: it is the same data area [in a store] and the following) SPOOL121 which is an e-mail maintenance means is formed in a mail server, and the mail addressed to a recipient is temporarily kept to this SPOOL121. The protocol for taking out this mail currently kept is POP, and a corresponding server is the POP server 12. In the protocol of the POP server 12, it is "POP3 (post office protocol version3" and "IMAP4 (internet messaging access protocol version4" is used.)).

The POP server 12 is usually waiting for access from the POP client 21 mentioned later.

[0021] Access to the POP server 12 by the POP client 21 serves as order of "connection" -> "authentication" -> "new-arrival mailing list" ->"acquisition of e-mail" -> "cutting." At this time, "conversation" as shown in drawing 4 is held among both. That is, the command of a user identification "USER" is sent to the POP server 12 from the POP client 21, and a user identification is performed by the POP server 12. After a user identification ("O.K."), if a password demand is received, the POP client 21 will send a self password "PASS" to the POP server 12. If a password is checked by the POP server 12 ("O.K."), a new-arrival mailing list demand "LIST" will be sent from the POP client 21. The POP server 12 investigates an e-mail arrival situation, and answers a letter in the result ("new-arrival mailing list"). Based on this reply, the POP client 21 acquires arrival mail for an e-mail acquisition demand "RETR" from delivery and the POP server 12 suitably ("O.K.", "mail"). When ending e-mail acquisition processing, a termination demand "QUIT" is sent from the POP client 21. The POP server 12 checks this and finishes the e-mail processing to the POP client 21 concerned ("O.K."). E-mail is distributed to the POP client 21 from the POP server 12 through such a conversation.

[0022] It is the function with which the communication terminal 20 by the side of the user who receives e-mail from the <POP client> POP server 12 as mentioned above, for example, a personal computer, is equipped. Generally this POP client 21 is called a mailer. That the POP client 21 receives e-mail consists of a POP server 12 as mentioned above rather than it is direct from the sender. On the occasion of user authentication (above "USER"), POP account (a mail account, e-mail user ID, etc.) is needed. POP account uses the same user name as a mail address as usual. With reference to a user's accessed POP account and a corresponding password, if they suit the POP server 12, it will pass a user e-mail.

[0023] Next, other functions which a mail server 10 and a communication terminal 20 have are explained. The e-mail Circulation Division 211 in drawing 5 changes into the condition which a user can peruse the mail received from the POP server 12, and the e-mail editorial department 212 performs e-mail creation and edit. In addition, the e-mail editorial department 212 creates the header unit of the format defined by "RFC822" which is well-known specification, for example besides edit of an e-mail

message body. Thus, generally the format which creates a header unit is called "RFC822 format." Drawing 6 is the graph having shown the field format in the header unit of RFC822 format, and its role. the example of illustration -- the "sender", the "destination", and "reference" -- "in addition to this", it is classified into the item of "a trace" and "custom", and is identified by the field name, respectively.

[0024] The term Management Department 212 is the function to enable it to set up the expiration date of the mail concerned for one etc. week etc. for 1 hour and one day in case a user inputs a destination name, a subject name, etc. of e-mail. It is inputting the numeric value of arbitration into a field name "X-Expired-Date", and, specifically, an expiration date is set as "custom" of the header unit shown in drawing 6.

[0025] Return and the header information extract section 122 of a mail server 10 extract it with the sender's POP account to it, when the header unit of the mail is investigated to drawing 2 and the expiration date is set as it, in case the mail received through SMTP server 11 is passed to the POP server 12. The extracted information is held in order of the telophase of a term at the term managed table 123. Thus, if it table-izes, compared with the case where e-mail is accumulated, term management etc. will only come to be quickly performed to SPOOL121. In addition, it may be the case where the expiration date is not set up, or you may make it hold on a managed table. In this case, it will hold in order of e-mail reception. Or you may make it hold that to which the expiration date is set, and the thing which is not set up on a separate table.

[0026] The unopened mail administration section 124 investigates periodically the expiration date currently held at the expiration date managed table 123 for every time amount progress which can be set up with always or a parameter, and even if it reaches at the telophase of an expiration date, when there is unopened mail, it specifies the mail. Moreover, reply mail is created based on POP account of the sender in the header unit of the specified mail. The document with which the mail makes the contents the purport which was not opened within the expiration date is added to the original mail with which the sender created reply mail. A new expiration date is set to reply mail. This new expiration date sets up the date which becomes indefinite substantially, in order not to circulate through between the sender and selves to infinity (loop mail). After sending reply mail, while deleting the original mail from SPOOL121, POP account of the sender about the eliminated mail concerned and the information on an expiration date are deleted from the term managed table 123.

[0027] in addition, the function of the header information extract section 122, the term managed table 123, and the unopened mail administration section 124 -- as the function of the POP server 12 -- coming out -- there is nothing, and you may exist uniquely or may exist as an attached function of SMTP server 11.

[0028] Next, an example of actuation of the e-mail relay system 1 by this operation gestalt is explained. Here, as shown in drawing 7, the case where Mail M is delivered to recipient R whose sender S who is Provider's A user is Provider's B user is assumed. Although premised on the communication terminal which Sender S operates, and the communication terminal which Recipient R operates being the same configurations, the communication terminal by the side of a recipient may not have the function of the term Management Department 22. Provider's A mail server 10a and Provider's B mail server 10b shall also be the same configurations. When distinguishing both, respectively, Suffix b is attached and explained about the element which Suffix a and mail server 10b have about the element which mail server 10a has.

[0029] In drawing 7, POP server 12a will send this mail M to SMTP server 11a, if the mail M with which the expiration date of arbitration was set up from Sender S is received (S1) (S2). SMTP server 11a deduces SMTP server 11b based on the destination of Mail M, and transmits this mail M to SMTP server 11b (S3). SMTP server 11b which received Mail M keeps this to SPOOL121b (S4). At this time, by header information extract section 122b, the information showing the sender and an expiration date is extracted from the header unit of that mail M, and it is list-ized by term managed table 123b (S5).

[0030] When Recipient R can access POP server 12b, it becomes the flow shown with a broken line among drawing. That is, if Recipient R demands a new-arrival mailing list of POP server 12b, POP server 12b will pass Recipient R the list of mails accumulated in SPOOL121b. If Recipient R demands

transmission of Mail M, POP server 12b will transmit the mail M to Recipient R. Although based also on a setup, the applicable information in Mail M and term managed table 123b is usually deleted at this time.

[0031] Even if it is supervising term managed table 123b and Mail M reaches at the telophase of an expiration date, when an unopened thing is checked, unopened mail administration section 124b creates reply mail M' based on the original mail M and POP account of the sender of a header unit (S6, S7), and carries out the automatic reply of this at Sender S (S8). At this time, it is as above-mentioned that a new expiration date is set up. Moreover, while deleting the original mail M from SPOOL121b, the applicable information on term managed table 123b is deleted (S9).

[0032] Reply mail M' is kept by Provider's A SPOOL121a as new-arrival mail addressed to sender S through SMTP server 11a (S10) from SMTP server 11b (S11). Although the information on Provider B and an expiration date is held at the term managed table of mail server 10a at this time, since the expiration date is set up indefinitely, it does not function in practice. Therefore, illustration is omitted. If POP server 12a is accessed in order that Sender S may acquire new-arrival mail (S11). POP server 12a sends the list of mails accumulated in SPOOL121a to Sender S. Moreover, SPOOL121a is taken out for applicable mail (reply mail M') by the demand from Sender S, and this is passed to Sender S (S12). Thereby, Sender S can check what mail M which he transmitted was not opened for by Recipient R within the term (perusal).

[0033] Thus, in the e-mail relay system 1 of this operation gestalt, since reply mail was made to answer the sender from a mail server 10 instead of a recipient when e-mail was not opened within an expiration date, it cannot be concerned with the function of the communication terminal by the side of a recipient, but can recognize certainly that e-mail was not opened by the sender side.

[0034] Moreover, since it was automatically deleted from SPOOL121 when a letter was answered in the mail which the expiration date ****(ed), the situation left by unnecessary mail in a mail server 10 is avoided, and meaningless duplication management becomes unnecessary and it is not only desirable on a system maintenance, but security's of e-mail improves. Since opening mail meaningless also for a recipient in detail is lost, the usability of an e-mail system improves.

[0035] In addition, although this operation gestalt showed the example of the e-mail relay system performed through the Internet, this invention can be large not only to such a case but intranet, a local area network, and the personal computer communications using a general public line, and can be applied to them. Moreover, according to this invention, any [of that the communications protocol when being opened with the communications protocol before the gestalt and mail with which it is placed only at least between one side by the side of the sender and a recipient by the network are held is same, or a different gestalt] employment is possible.

[0036]

[Effect of the Invention] Since the check of whether the electronic mail with which an expiration date has a recipient opened by the sender can be certainly performed according to this invention so that clearly from the above explanation, the characteristic effectiveness that the convenience of an electronic mail increases can be done so.

[Translation done.]